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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FITCH EVEN TABIN AND FLANNERY
120 SOUTH LA SALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER

TON, ANTHONY T

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/767,196

Applicant(s)

ASSA ET AL.

Examiner

Anthony T Ton

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTIONS

Drawing Objections

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the following:

a) reference character “**66**” has been used to designate both “**cell**” and “**ATM Switch**” in **Fig.6**.

Examiner suggests changing the character “**66**”, which is corresponding to the “**cell**”, to “**65**”.

b) reference character “**68⁽²⁾**” has been used to designate both “**VPI₁**” and “**ECI**” in **Fig.6**.

Examiner suggests changing the character “**68⁽²⁾**”, which is corresponding to the “**ECI**” inside the ATM Switch, to “**68⁽¹⁾**” (see page 8 line 17 of the specification for the reference).

2. **Figures 1-5** should be designated by a legend such as --**Prior Art**-- because only that which is old is illustrated. See MPEP § 608.02(g).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification Objections

3. The disclosure is objected to because of the following informalities:

a) Term “**Fig. 4B**” in page 2 on line 10 and line 31 (two places) is not appropriate with Fig.4(b) of the Drawings.

Examiner suggests changing this term to "**Fig. 4(b)**".

b) Term "**state (50)**" in page 3 line 33 is not appropriate with Fig.5 of the Drawings and the disclosure in line 29 of this page.

Examiner suggests changing this term to "**state (51)**".

c) Term "**(65, 66)**" in page 8 line 14 is not appropriate with Fig.6 as the objection in the item (a) of the drawings above.

Examiner suggests changing this term to either "**(65, 65)**" or "**(65)**" to be accommodated with the change of Fig.6 as objected in the item (a) of the drawings above.

Appropriate correction is required.

Claim Rejections - 35 USC § 112, 1st Paragraph

4. The following is a quotation of **the first paragraph** of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 1-30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 in line 12, **Claim 15** in line 15, **Claim 29** in line 14, and **Claim 30** in line 17 recite limitation "**substantially O(1)**" was not clearly disclosed in the specification.

Claim Rejections - 35 USC § 112, 2nd Paragraph

6. The following is a quotation of **the second paragraph** of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. **Claims 1-30** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claims 1, 15, 29 and 30** recite limitation “**substantially O(1)**” in Claim 1 line 12, in Claim 15 line 15, in Claim 29 line 14, and in Claim 30 line 17 is vague and indefinite since the function of the term “**O(1)**” was not clearly disclosed in the specification. It is not clear what “**substantially O(1)**” means?

b) **Claims 1, 15, 29 and 30** recite limitation “**said data items**” in Claim 1 line 9, in Claim 15 line 10, in Claim 29 line 11, and in Claim 30 line 13 . There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1, 2, 14-16 and 28-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Calvignac et al** (US Patent No. **6,044,079**) in view of **Nishihara et al** (US Patent No. **6,137,798**).

a) **In Regarding to Claim 15: Calvignac et al disclosed** an device including ATM switching capabilities or including interior fixed length packet/cell processing for use in telecommunication networks (see Fig.1: blocks 18 ATM Switch), the device includes a buffer of incoming cells of packets (see Fig.5: blocks 86), the device comprising:

(a) each VCI is associated with data that include data item serving for packet efficiency mechanism (see col.5 lines 7-20: Cell identifier (data item), VCI)

(b) storage medium storing data representative of data structure for storing selected number from said data item (see Figs.5 and 6: Block 74, VCC Hash Table; and see col.3 lines 4-21: An alternative approach is to maintain a data base (storage medium) e.g., a tree structure (data structure), associated with each VP connection. The tree structure contains an entry for each VCI for which a cell has been received).

(c) processor associated with said storage medium configured to perform the processing that include: for each incoming cell whose VCI is associated with data item that is stored in said data structure constructing a search key that enables to access said data item at **substantially O(1)** (see col.3 lines 54-67: The apparatus also includes a processor unit, which receives a data cell having a cell identifier. The processor unit determines a table key (search key) based on the cell identifier (Examiner considers the cell identifier as "substantially O(1)" of the instant claim because based on the cell identifier, the search key can particularly locate where such a cell identifier in the memory) such that the table key is within the range of the table addresses. The

processor unit then searches a record in the table associated with the table key to determine whether the data cell is to be discarded).

Calvignac et al failed to explicitly disclose the cells are assigned, each, within VPI and VCI, such that all cells of the same packet bear the same VCI.

Nishihara et al disclosed such assigned cells (*see col.5 lines 34-45: Counter 64 is incremented by the output of BOM detector 63 when it detects the beginning of a packet and supplies this count value as a new VCI to be assigned to all cells of the same packet supplied from the switch 50).*

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide such assigned cells throughout the device of Calvignac et al, as taught by Nishihara et al, so that cells can be properly tracking when sending them across an ATM switch, **the motivation being** to alleviate data congestion at the ATM switch.

b) In Regarding to Claim 16: Calvignac et al further disclosed wherein said data item indicates an EPD/PPD state machine (*see Fig.5: Block 98 packet discard subroutine; and see col.4 lines 39-49: the network switch performs a partial packet discard (PPD) on the frame for which early packet discard (EPD) was intended, and other frame which did not require EPD).*

It would have been obvious to combine **Calvignac et al** and **Nishihara et al** for the same reason as in **Claim 15**.

c) In Regarding to Claim 28: Calvignac et al and Nishihara et al disclosed all aspects of claim 28 as set forth in claim 15.

Both Calvignac et al and Nishihara et al failed to explicitly teach wherein only data items with associated VCI value that exceeds 31 is stored in said data structure. **However, Calvignac et al disclosed table indexes**, i.e. between $[0...N-1]$, $[N-100...N+100]$. In which, table indexes can be considered as data items of the instant claim, and the value from 0 to N-1 would be considered as the VCI value. In addition, Calvignac et al disclosed a hash table that is particularly useful for storing records.

Therefore, **it would have been obvious** to one of ordinary skilled in the art can provide such stored data items throughout the hash table of Calvignac et al. as a design choice in a selection of VCI value for any desirable purposes, **the motivation being** to save the space for a memory storage and provide a record search more quickly and efficiently.

c) **In Regarding to Claims 1, 2 and 14:** these claims are rejected for the same reasons as **Claims 15, 16 and 28**, respectively because the device in **Claims 15, 16 and 28** can be used to practice the method steps of **Claims 1, 2 and 14**, respectively.

d) **In Regarding to Claim 29:** this claim is rejected for the same reasons as **Claim 15** because the device in **Claim 15** can be used to practice the method steps of a program storage device as set forth in **Claim 29**.

e) **In Regarding to Claim 30:** this claim is rejected for the same reasons as **Claim 15** because the device in **Claim 15** can be used to practice the computer program product as set forth in **Claim 30**.

10. **Claims 3-5, 13, 17-19 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Calvignac et al** (US Patent No. **6,044,079**) in view of **Nishihara et al** (US Patent No. **6,137,798**) as applied in claims 15 and 16 above, and further in view of the **Figure 5** of the **Admitted Prior Art**.

a) **In Regarding to Claim 17: Calvignac et al and Nishihara et al disclosed** all aspects of claim 17 as set forth in claims 15 and 16.

However, both Calvignac et al and Nishihara et al failed to explicitly teach wherein said data item is 2-bit-long representing a packet efficiency mechanism realized as an EPD/PPD state machine.

In Figure 5 of the Admitted Prior Art clearly disclosed such a 2-bit long data item (*see Fig.5: bits 00, 01, 10, and 11 placed inside the blocks of state transition diagram 51, 52, 53, and 54, respectively*).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide such a 2-bit long data item throughout the tree structure of Calvignac et al, as taught by the Admitted Prior Art, so that cells can be properly discarded when sending them across an ATM switch, **the motivation being** to alleviate data congestion at the ATM switch.

b) **In Regarding to Claims 18 and 19: Calvignac et al further disclosed** wherein said data structure being an N over M table (*see col.5 lines 32-47: a table key (M), the table size (N)*).

It would have been obvious to combine **Calvignac et al and Nishihara et al** for the same reason as in **Claims 15 and 17**.

c) **In Regarding to Claim 27: Calvignac et al further disclosed** wherein said processor is further configured to testing a triggering condition, which determines whether or not to apply said step (c) (see Fig.7A: step 104).

It would have been obvious to combine **Calvignac et al** and **Nishihara et al** for the same reason as in **Claim 15**.

d) **In Regarding to Claims 3, 4, 5 and 13:** these claims are rejected for the same reasons as **Claims 17, 18, 19 and 27**, respectively because the device in **Claims 17, 18, 19 and 27** can be used to practice the method steps of **Claims 3, 4, 5 and 13**, respectively.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T Ton whose telephone number is 703-305-8956. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Olms can be reached on 703-305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ATT
4/16/2004



KENNETH VANDERPUVE
PRIMARY EXAMINER